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Preface. Introduction. A century of controversy over the foundations of mathematics (lecture). How to be a mathematician (TV interview). The creative life: Science vs. art (interview). Algorithmic information theory & the foundations of mathematics (lecture). Randomness in arithmetic (TV interview). The reason for my life (interview). Undecidability & randomness in pure mathematics (lecture). Math, science & fantasy (interview). Sensual mathematics (TV interview). Final thoughts. Recommended further reading.

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Acknowledgments. Preface to the paperback edition. Preface. Introduction. The problems. 1. How to ask an embarrassing question. 2. When idiots duel. 3. Will the light bulb glow? 4. The underdog and the World Series. 5. The curious case of the snowy birthdays. 6. When human flesh begins to fail. 7. Baseball, again, and mortal flesh, too. 8. Ball madness. 9. Who pays for the coffee? 10. The chess champ versus the gunslinger. 11. A different slice of probabilistic pi. 12. When negativity is a no-no. 13. The power of randomness. 14. The random radio. 15. An inconceivable difficulty. 16. The unsinkable tub is sinking! How to find her, fast. 17. A walk in the garden. 18. Two flies stuck on a piece of flypaper—How far apart? 19. The blind spider and the fly. 20. Reliably unreliable. 21. When theory fails, there is always the computer. The solutions. Random number generators. "Some things just have to be done by hand!" MATLAB programs. Index. About the author.

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Contributor list. Overview (A.J.G. Hey). I. Feynman's course in computation. 1. Feynman and computation (J.J. Hopfield). 2. Neural networks and physical systems with emergent collective computational abilities (J.J. Hopfield). 3. Feynman as a colleague (C.A. Mead). 4. Collective electrodynamics I (C.A. Mead). 5. A memory (G.J. Sussman). 6. Numerical evidence that the motion of Pluto is chaotic (G.J. Sussman and J. Wisdom). II. Reducing the size. 7. There's plenty of room at the bottom (R.P. Feynman). 8. Information is inevitably physical (R. Landauer). 9. Scaling of MOS technology to submicrometer feature sizes (C.A. Mead). 10. Richard Feynman and cellular vacuum (M. Minsky). III. Quantum limits. 11. Simulating physics with computers (R.P. Feynman). 12. Quantum robots (P. Benioff). 13. Quantum information theory (C.H. Bennett). 14. Quantum computation